

AMENDMENTS TO THE CLAIMS

Please cancel claims 29 and 40, amend claims 19-22, 24-26, 30-33, and 35-37, and add new claims 41-42 as follows:

1-18. (Cancelled)

19. (Currently Amended) A method for recognizing faces of persons, comprising:

training a system to recognize a facial component;

populating a first knowledge base with facial components and, for each facial component,

the facial component's body part classification[[:]], wherein the facial

components in the first knowledge base include

using the first knowledge base to determine, for each facial component in a plurality of

facial components, a body part classification for the facial component, wherein

the plurality of facial components comprises a first set of facial components

extracted from facial identification training image data of a face of a first person

at a first viewpoint set of viewpoints ~~and a face of a second person at a second~~

viewpoint;

determining, from said plurality of facial components and their determined body part

classifications, a first facial component that maximizes a posterior probability that

the person class of the first facial component is the first person; and

determining, from said plurality of facial components and their determined body part

classifications, a second facial component that maximizes a posterior probability

that the person class of the second facial component is the second person.

determining a first set of body part classifications associated with the first set of facial

components; and

determining, from the first set of body part classifications, a first body part classification that maximizes a probability that a person class of the facial components in the first set of facial components that are associated with the first body part classification is the first person.

20. (Currently Amended) The method of claim 19, wherein ~~a body part classification of the first facial component and a body part classification of the second facial component are different.~~
the first body part classification and the second body part classification are different.

21. (Currently Amended) The method of claim 19, wherein determining the first ~~facial component~~ body part classification comprises determining the first ~~facial component~~ body part classification using Bayesian estimation.

22. (Currently Amended) The method of claim 19, wherein determining the first ~~facial component~~ body part classification comprises:

determining a first conditional probability, that a class is the first person, of the facial components extracted from the facial identification training image data of the face of the first person at ~~the~~ a first viewpoint;

determining a first posterior probability, that a class is the first person, by multiplying the conditional probability at the first viewpoint by a prior probability, that a class is the first person;

determining a second conditional probability, that a class is the first person, of facial components extracted from facial identification training image data of the face of the first person at an additional viewpoint; and
determining a second posterior probability, that a class is the first person, by multiplying the second conditional probability by the first posterior probability.

23. (Previously Presented) The method of claim 22, wherein the prior probability, that the class is the first person, comprises one N th where N is a number of person classes.

24. (Currently Amended) The method of claim 19, further comprising storing, in a second knowledge base, ~~the first facial component and the second facial component;~~ the facial components in the first set of facial components that are associated with the first body part classification.

25. (Currently Amended) The method of claim 24, further comprising:
receiving ~~body part classifications of~~ facial components at various viewpoints of a person to be identified; and
identifying the person using a facial component stored in the second knowledge base.

26. (Currently Amended) The method of claim ~~49~~ 41, wherein the first ~~viewpoint set of~~ viewpoints and the second ~~viewpoint set of viewpoints~~ are different.

27. (Previously Presented) The method of claim 19, wherein training the system to recognize the facial component comprises:

receiving facial component training image data of faces of persons at various viewpoints;
extracting facial components at various viewpoints from the facial component training image data of faces of persons at various viewpoints; and
training a body part classifier module using the extracted facial components.

28. (Previously Presented) The method of claim 27, wherein the body part classifier module performs one-versus-all classification.

29. (Cancelled)

30. (Currently Amended) A system for recognizing faces of persons, comprising:

a training module configured to train a facial component recognition system to recognize a facial component;
a population module configured to populate a first knowledge base with facial components and, for each facial component, the facial component's body part classification[[:]], wherein the facial components in the first knowledge base include
~~a body part module configured to use the first knowledge base to determine, for each facial component in a plurality of facial components, a body part classification for the facial component, wherein the plurality of facial components comprises a first set of facial components extracted from facial identification training image data of~~

a face of a first person at a first ~~viewpoint~~ set of viewpoints and a face of a second person at a second ~~viewpoint~~; and

an indicator component module configured to determine, from said plurality of facial components and their determined body part classifications, a first facial component that maximizes a posterior probability that the person class of the first facial component is the first person and a second facial component that maximizes a posterior probability that the person class of the second facial component is the second person.

an indicator component module configured to determine a first set of body part classifications associated with the first set of facial components and to determine, from the first set of body part classifications, a first body part classification that maximizes a probability that a person class of the facial components in the first set of facial components that are associated with the first body part classification is the first person.

31. (Currently Amended) The system of claim ~~30~~ 42, wherein ~~a body part classification of the first facial component and a body part classification of the second facial component are different.~~ the first body part classification and the second body part classification are different.

32. (Currently Amended) The system of claim 30, wherein the indicator component module is further configured to determine the first ~~facial component~~ body part classification using Bayesian estimation.

33. (Currently Amended) The system of claim 30, wherein the indicator component module is further configured to:

determine a first conditional probability, that a class is the first person, of the facial components extracted from the facial identification training image data of the face of the first person at ~~the~~ a first viewpoint;

determine a first posterior probability, that a class is the first person, by multiplying the conditional probability at the first viewpoint by a prior probability, that a class is the first person;

determine a second conditional probability, that a class is the first person, of facial components extracted from facial identification training image data of the face of the first person at an additional viewpoint; and

determine a second posterior probability, that a class is the first person, by multiplying the second conditional probability by the first posterior probability.

34. (Previously Presented) The system of claim 33, wherein the prior probability, that the class is the first person, comprises one N th where N is a number of person classes.

35. (Currently Amended) The system of claim 30, further comprising a storage module configured to store, in a second knowledge base, ~~the first facial component and the second facial component.~~ the facial components in the first set of facial components that are associated with the first body part classification.

36. (Currently Amended) The system of claim 35, further comprising:

a receiving module configured to receive ~~body-part-classifications~~ of facial components at various viewpoints of a person to be identified; and
an identification module configured to identify the person using a facial component stored in the second knowledge base.

37. (Currently Amended) The system of claim ~~30~~ 42, wherein the first ~~viewpoint set of viewpoints~~ and the second ~~viewpoint set of viewpoints~~ are different.

38. (Previously Presented) The system of claim 30, wherein the training module is further configured to:

receive facial component training image data of faces of persons at various viewpoints;
extract facial components at various viewpoints from the facial component training image data of faces of persons at various viewpoints; and
train a body part classifier module using the extracted facial components.

39. (Previously Presented) The system of claim 38, wherein the body part classifier module performs one-versus-all classification.

40. (Cancelled)

41. (New) The method of claim 19, wherein the facial components in the first knowledge base further include a second set of facial components extracted from facial identification training

image data of a face of a second person at a second set of viewpoints, and wherein the method further comprises:

determining a second set of body part classifications associated with the second set of facial components; and

determining, from the second set of body part classifications, a second body part classification that maximizes a probability that a person class of the facial components in the second set of facial components that are associated with the second body part classification is the second person.

42. (New) The system of claim 30, wherein the facial components in the first knowledge base further include a second set of facial components extracted from facial identification training image data of a face of a second person at a second set of viewpoints, and wherein the indicator component module is further configured to determine a second set of body part classifications associated with the second set of facial components and to determine, from the second set of body part classifications, a second body part classification that maximizes a probability that a person class of the facial components in the second set of facial components that are associated with the second body part classification is the second person.